vangoorii. We are grateful to Dr Elizabeth Haworth (Freshwater Biological Association) for confirming that no U.K. records of *O. vangoorii* pre-existed in the Fritsch Collection. We thank SEPA for providing the water chemistry data for Loch Grannoch. We also thank Dr Kevin Murphy (University of Glasgow) for proof-reading an earlier version of the manuscript.

REFERENCES

John, D.M., Whitton, B.A. & Brook, A.J. (2011). *The Freshwater Algal Flora of the British Isles*, 2nd Edition. Cambridge University Press, Cambridge.

Lang, P., Ross, N., Krokowski, J. & Doughty, R. (2011). The elusive planktonic freshwater chrysophyte *Bitrichia longispina*: a first record for Scottish lochs and comparison with the commoner species, *Bitrichia chodatii*. *The Glasgow Naturalist* 25, 106 – 108.

Lang, P., Procházková, L., Krokowski, J., Meis, S., Spears, B.M., Milne, I. & Pottie, J. (2013). The bizarre Eustigmatacean alga, *Pseudostaurastrum limneticum* (Borge) Chodat, in a shallow, nutrient-enriched Scottish loch: new to the British Isles. *The Glasgow Naturalist* 25, (in press).

Lund, J.W.G. (1960). Concerning *Calycomonas* Lohmann and *Codonomonas* Van Goor, *Nova Hedwigia* 1, 423 – 429.

Novarino, G., Oliva, E. & Pérez-Uz, B. (2002). Nanoplankton protists from the western Mediterranean Sea. I. Occurrence, ultrastructure, taxonomy and ecological role of the mixotrophic flagellate *Ollicola vangoorii* (Chrysamonadidae = Chrysophyceae p.p.). *Scientia Marina* 66, 233 – 247.

Starmach, K. (1985). Süsswasserflora von Mitteleuropa 1: Chrysophyceae und Haptophyceae, VEB Gustav Fisher Verlag, p. 108 – 109.

Vørs, N. (1992). Heterotrophic amoebae, flagellates and heliozoa from the Tvärminne area, Gulf of Finland, *Ophelia* 36, 1 – 109.

The fusiform green alga *Desmatractum spryii* (Chlorophyta, Chlorococcales): a noteworthy discovery made in a peninsula loch, S.W. Scotland

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Chlorococcalean, or green alga species, belonging to the genus *Desmatractum* West *et* G.S. West (1902) are solitary cells enclosed by a spindle-shaped 'fusiform' envelope, typically broader in the middle and tapering towards the poles (John & Tsarenko, 2011).

In the course of analysing phytoplankton samples collected as part of the Scottish Environment Protection Agency's ongoing assessment of the ecological status of freshwater lochs in Scotland (Lang *et al.*, 2013), *Desmatractum spryii* Nicholls was found to occur frequently (e.g., 10 – 20 cells per 100 ml sub-sample) in Loch Mochrum during the summer months of 2012. Loch Mochrum lies within the Machars Peninsula of Dumfries and Galloway, south-western Scotland (NGR: NX 30255 53183). The loch has an area of *c.* 0.9 km^2, is characterized by relatively low alkalinity (annual mean 6.57 mg L^{-1} as $CaCO_3$ in 2012) and meso-eutrophic water chemistry [annual mean total phosphorus (TP) concentration 42.43 µg L^{-1} in 2012].

Of the nine *Desmatractum* species recognized, only one of these, *D. bipyramidatum* (Chodat) Pascher is currently known to British freshwaters (Lund, 1942; John & Tsarenko, 2011). Hence, this finding of *D. spryii* in a Scottish peninsula loch comprises an entirely new record for the U.K. (D. John, *pers. comm.*).

Desmatractum spryii was originally described from the phytoplankton of several hardwater lakes in Ontario, Canada (Nicholls *et al.*, 1981), and has rarely been documented since, aside from Norway (Reymond & Skogstad, 1983), Germany and the Ukraine (Hegewald & Tsarenko, 1998). *Desmatractum spryii* (Fig. 1*a*, *b*) can be unmistakably differentiated from other members of the genus, by distinct ridges present in the equatorial region of the cell wall, a consistent characteristic of the species (Nicholls *et al.*, 1981; Reymond & Skogstad, 1983; Reymond & Kouwets, 1984).

Our observations, together with other published work, imply that *D. spryii* occupies a broad ecological niche of ranging alkalinity and nutrient conditions. Although we may presume that genetically these findings constitute the same species, for now, it seems the bio-indicator value of *D. spryii* remains undefined. Nonetheless this species encompasses a noteworthy discovery and a welcome addition to the British algal flora.

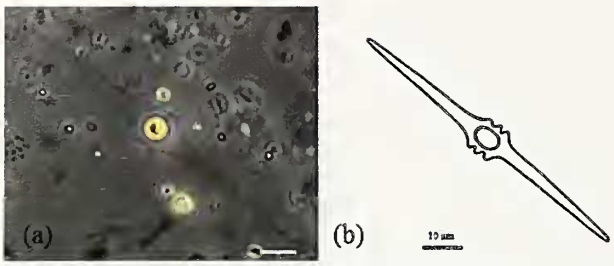

Fig. 1. *Desmatractum spryii.* (a) Photomicrograph of *D. spryii* preserved in Lugol's iodine. Scalebar, 10 µm. (b) Line drawing of *D. spryii.*

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REFERENCES

Hegewald, E. & Tsarenko, P. (1998). *Desmatractum spryii* (Chlorophyceae, Treubariaceae) new for Germany and the Ukraine. *Algological Studies* 124, 15 – 22.

John, D.M. & Tsarenko, P.M. (2011). Phylum Chlorophyta (Green Algae) Order Chlorococcales p. 412-414 In: John, D.M., Whitton, B.A. & Brook, A.J., (editors) *The Freshwater Algal Flora of the British Isles*, 2nd Edition. Cambridge University Press, Cambridge.

Lang, P., Procházková, L., Krokowski, J., Meis, S., Spears, B.M., Milne, I. & Pottie, J. (2013). The bizarre Eustigmatacean alga, *Pseudostaurastrum limneticum* (Borge) Chodat, in a shallow, nutrient-enriched Scottish loch: new to the British Isles. *The Glasgow Naturalist* 25, (in press).

Lund, J.W.G. (1942). Contribution to our knowledge of British algae – VIII. *Journal of Botany* 80, 57 – 73.

Nicholls, K.H., Nakamoto, L. & Heintsch, L. (1981). *Desmatractum spryii* sp. nov., a new member of the Chlorococcales and comments on related species. *Phycologia* 20, 138 – 141.

Reymond, O.L. & Kouwets, F.A.C. (1984). Taxonomical and ultrastructural survey of the genus *Desmatractum* West & West (Chlorococcales) Pp. 379 – 389 In: Irvine, D.E.G. & John, D.M. (editors) *The Systematics of Green Algae*, The Systematics Association, Special Volume No. 27, Academic Press.

Reymond, O.L. & Skogstad, A. (1983). Etude de quelques caractéristiques ultrastructurales et écologiques chez *Desmatractum spryii* Nicholls, Nakamoto & Heintsch (Chlorophyceae, Chlorococcales). *Archives des Sciences* 36, 361 – 367.

West, W. & West, G.S. (1902). A contribution to the freshwater algae of Ceylon. *Transactions of the Linnean Society of London 2nd series: Botany* 6, 123 – 215.

The rare smut fungus *Urocystis fischeri* (Urocystidales, Ustilaginomycotina) from the Outer Hebrides, Scotland, with notes on its systematic position

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Urocystis fischeri Körn. is a smut fungus that forms blisters in the leaves of several species of sedges *Carex* spp. Vánky (2012) gives 28 species and one hybrid as hosts. Vánky (1994) has 23 and one of these respectively in Europe (Fig. 1), but most of these are not known as hosts in the British Isles. There are fewer than 30 distinct records of *U. fischeri* from the British Isles according to FRDBI (www.fieldmycology.net/FRDBI), mainly from *Carex flacca* Schreb. (glaucous sedge), with a few records from *C. panicea* L. (carnation sedge) and one from *C. nigra* (L.) Reichard (common sedge).

Fig. 1. *Urocystis fischeri* on the leaves of the sedge *Carex rostrata,* Berchtesgaden National Park, Bavaria (Courtesy of Julia Kruse).